

CLAIMS

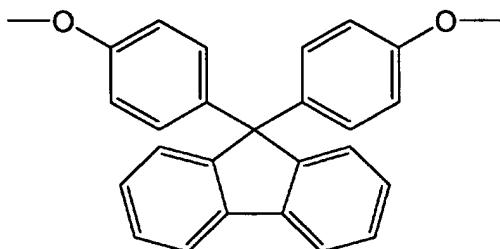
What is claimed is:

1. An electrophotographic photoreceptor for wet development comprising:
an electrically conductive substrate; and

an organic photosensitive layer formed on the electrically conductive substrate, wherein
a surface layer of the organic photosensitive layer includes at least a binder resin comprising a
polymer compound and a charge transport material comprising a low molecule compound, the
surface layer having an oxygen gas permeation coefficient of $5 \times 10^{-13} \text{ cm}^3$ (STP)
 $\text{cm/s} \cdot \text{cm}^2 \cdot \text{cmHg}$ or less.

2. The electrophotographic photoreceptor of claim 1, wherein the binder resin is
formed of a polymer compound having a biphenylfluroene unit represented by Formula 1 in a
main chain:

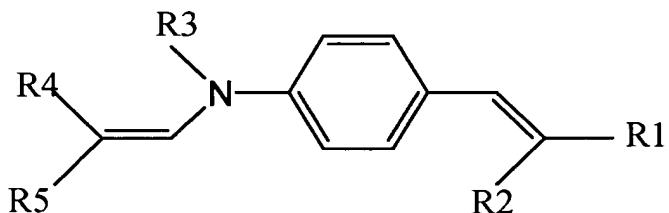
<Formula 1>



wherein at least one hydrogen atom of the benzene rings is substitutable by an arbitrary
substituent selected from the group consisting of a halogen atom, a C1~C20 alkyl group and a
C5~C8 cycloalkyl group.

3. The electrophotographic photoreceptor of claim 1, wherein the charge transport
material includes a hole transport material represented by Formula 2:

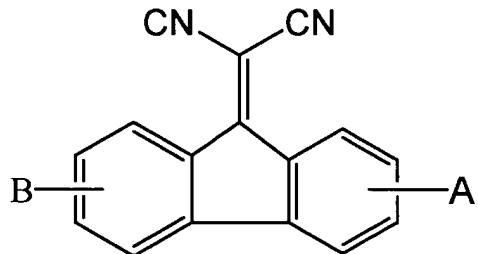
<Formula 2>



wherein R1 through R5 are independently one selected from the group consisting of a hydrogen atom, a C1 ~ C30 substituted or unsubstituted alkyl group, a C6 ~ C30 substituted or unsubstituted aryl group, a C1 ~ C30 substituted or unsubstituted alkoxy group, and a C8 ~ C30 substituted or unsubstituted styrene group, and at least one hydrogen atom in the benzene rings is substitutable by an arbitrary substituent.

4. The electrophotographic photoreceptor of claim 1, wherein the charge transport material includes an electron transport material represented by Formula 3:

<Formula 3>

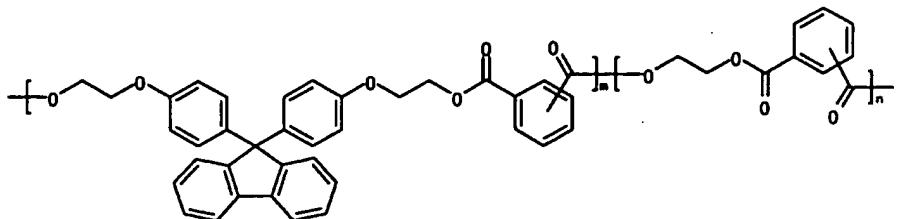


wherein A and B are independently one selected from the group consisting of a hydrogen atom, a halogen atom, a C2 ~ C30 substituted or unsubstituted alkoxy carbonyl group and a C2 ~ C30 substituted or unsubstituted alkylaminocarbonyl group, and at least one hydrogen atom in the benzene rings is substitutable by a halogen atom.

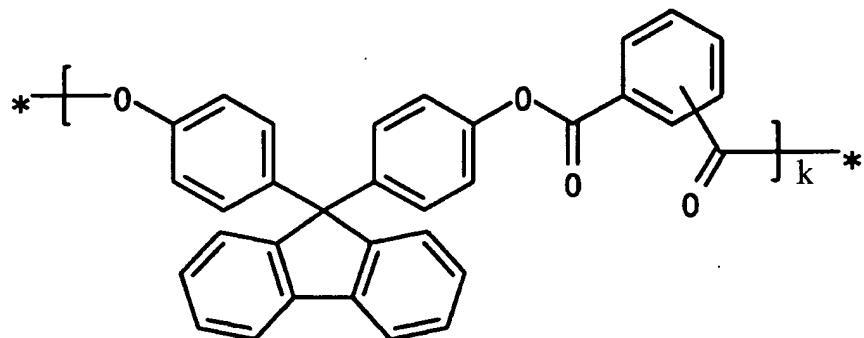
5. The electrophotographic photoreceptor of claim 1, wherein a proportion of the binder resin in the surface layer is preferably 60 ~ 90% by weight.

6. The electrophotographic photoreceptor of claim 2, wherein the polymer compound is represented by Formula 4, 5, 6 or 7:

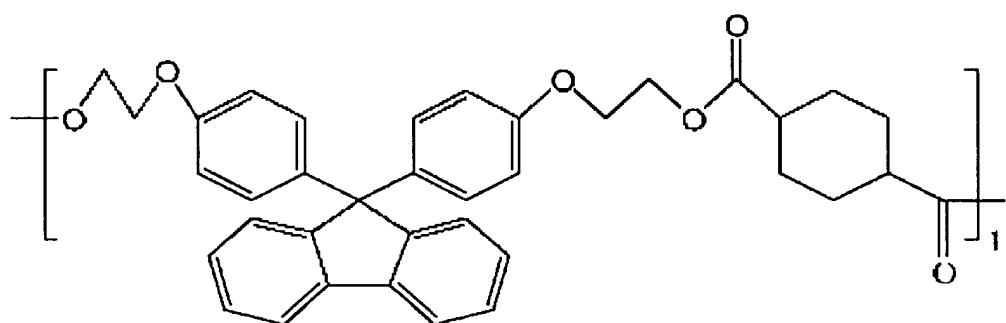
<Formula 4>



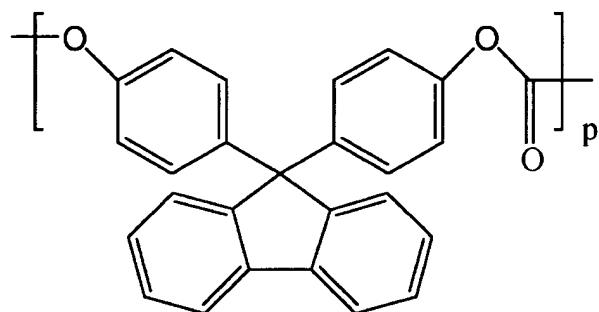
<Formula 5>



<Formula 6>



<Formula 7>



wherein k, l, m, n and p are independently an integer between about 10 and about 1000.

7. The electrophotographic photoreceptor of claim 1, wherein the electrophotographic photoreceptor further comprises an intermediate layer for enhancing bonding strength of the organic photosensitive layer to the electrically conductive substrate.

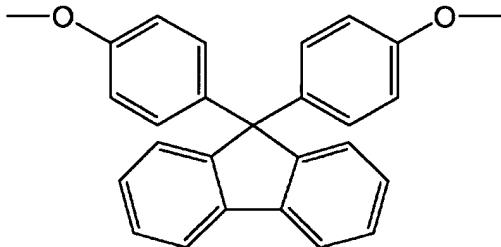
8. The electrophotographic photoreceptor of claim 1, wherein the electrophotographic photoreceptor further comprises an intermediate layer for preventing charge injection from the electrically conductive substrate, between the electrically conductive substrate and the photosensitive layer.

9. An electrophotographic imaging apparatus comprising:

a developing unit utilizing liquid developer, wherein the liquid developer is able to directly contact the surface of an electrophotographic photoreceptor comprising an organic photosensitive layer formed on an electrically conductive substrate, wherein a surface layer of the organic photosensitive layer includes at least a binder resin comprising a polymer compound and a charge transport material comprising a low molecule compound, the surface layer having an oxygen gas permeation coefficient of $5 \times 10^{-13} \text{ cm}^3 \text{ (STP)} \text{ *cm/s *cm}^2 \text{ *cmHg}$ or less.

10. The electrophotographic imaging apparatus of claim 9, wherein the binder resin is formed of a polymer compound having a biphenylfluorene unit represented by Formula 1 in a main chain:

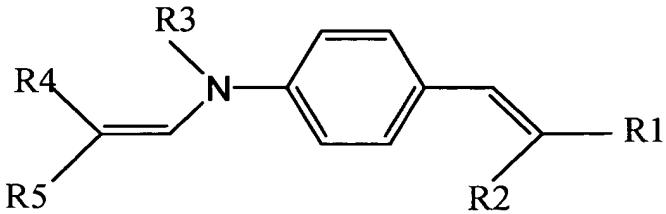
<Formula 1>



wherein at least one hydrogen atom of the benzene rings is substitutable by an arbitrary substituent selected from the group consisting of a halogen atom, a C1~C20 alky l group and a C5~C8 cycloalkyl group.

11. The electrophotographic imaging apparatus of claim 9, wherein the charge transport material includes a hole transport material represented by Formula 2:

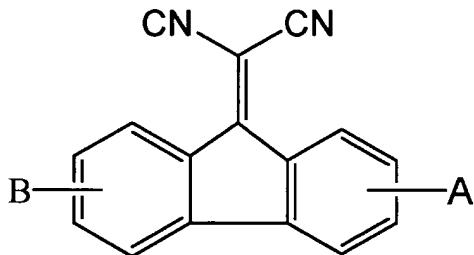
<Formula 2>



wherein R1 through R5 are independently one selected from the group consisting of a hydrogen atom, a C1 ~ C30 substituted or unsubstituted alkyl group, a C6 ~ C30 substituted or unsubstituted aryl group, a C1 ~ C30 substituted or unsubstituted alkoxy group, and a C8 ~ C30 substituted or unsubstituted styrene group, and at least one hydrogen atom in the benzene rings is substitutable by an arbitrary substituent.

12. The electrophotographic imaging apparatus of claim 9, wherein the charge transport material includes an electron transport material represented by Formula 3:

<Formula 3>

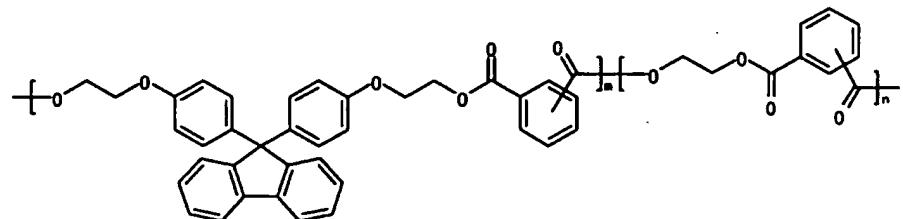


wherein A and B are independently selected from the group consisting of a hydrogen atom, a halogen atom, a C2 ~ C30 substituted or unsubstituted alkoxy carbonyl group and a C2 ~ C30 substituted or unsubstituted alkylaminocarbonyl group, and at least one hydrogen atom in the benzene rings is substitutable by a halogen atom.

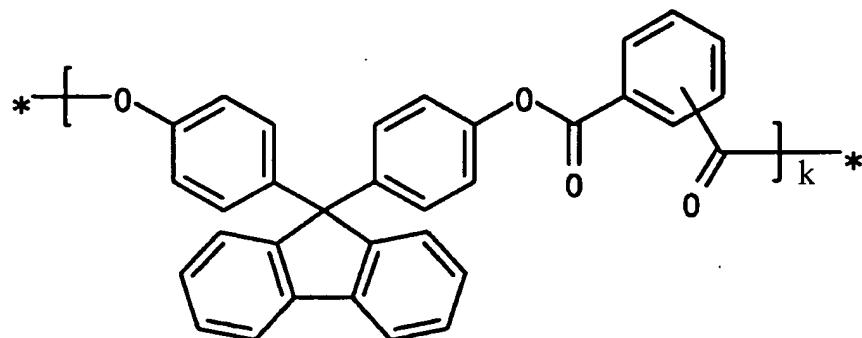
13. The electrophotographic imaging apparatus of claim 9, wherein a proportion of the binder resin in the surface layer is preferably 60 ~ 90% by weight.

14. The electrophotographic imaging apparatus of claim 9, wherein the polymer compound is represented by Formula 4, 5, 6 or 7:

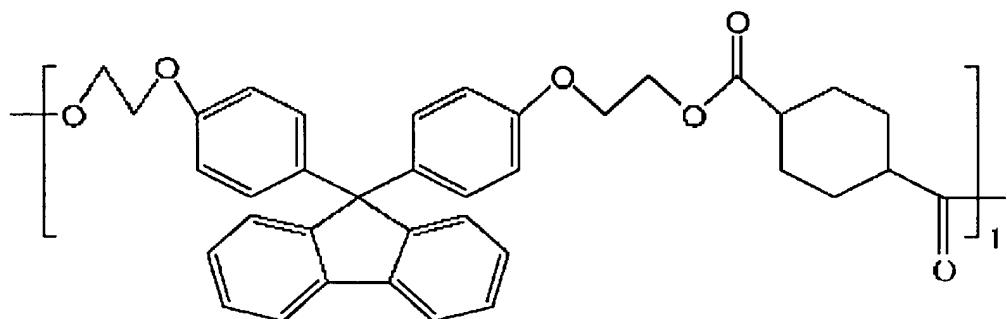
<Formula 4>



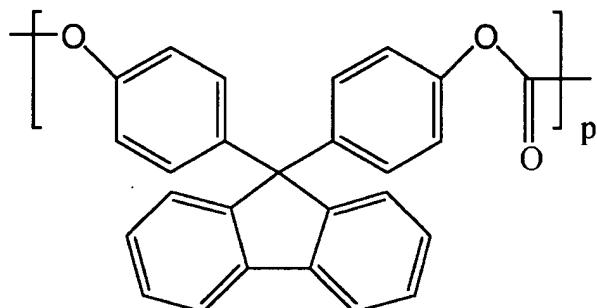
<Formula 5>



<Formula 6>



<Formula 7>



wherein k, l, m, n and p are independently an integer between about 10 and about 1000.

15. The electrophotographic imaging apparatus of claim 9, wherein the electrophotographic photoreceptor further comprises an intermediate layer for enhancing bonding strength of the organic photosensitive layer to the electrically conductive substrate.

16. The electrophotographic imaging apparatus of claim 9, wherein the electrophotographic photoreceptor further comprises an intermediate layer for preventing charge injection from the electrically conductive substrate, between the electrically conductive substrate and the photosensitive layer.

17. An electrophotographic cartridge, comprising:

an electrophotographic photoreceptor comprising an organic photosensitive layer formed on an electrically conductive substrate, wherein a surface layer of the organic photosensitive layer includes at least a binder resin comprising a polymer compound and a charge transport material comprising a low molecule compound, the surface layer having an oxygen gas permeation coefficient of $5 \times 10^{-13} \text{ cm}^3 (\text{STP})^* \text{cm/s}^* \text{cm}^2 \text{cmHg}$ or less;

a charging device that charges the electrophotographic photoreceptor;

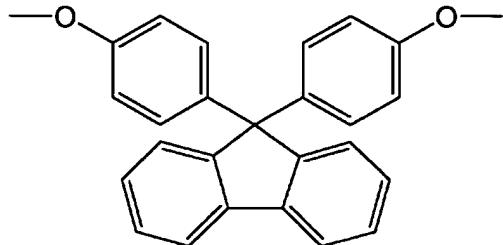
a developing device which develops an electrostatic latent image formed on the electrophotographic photoreceptor; and

a cleaning device which cleans a surface of the electrophotographic photoreceptor;

wherein the electrophotographic cartridge is attachable to or detachable from an image forming apparatus.

18. The electrophotographic cartridge of claim 17, wherein the binder resin is formed of a polymer compound having a biphenylfluorene unit represented by Formula 1 in a main chain:

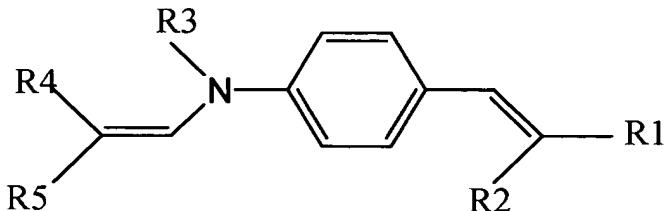
<Formula 1>



wherein at least one hydrogen atom of the benzene rings is substitutable by an arbitrary substituent selected from the group consisting of a halogen atom, a C1~C20 alky l group and a C5~C8 cycloalkyl group.

19. The electrophotographic cartridge of claim 17, wherein the charge transport material includes a hole transport material represented by Formula 2:

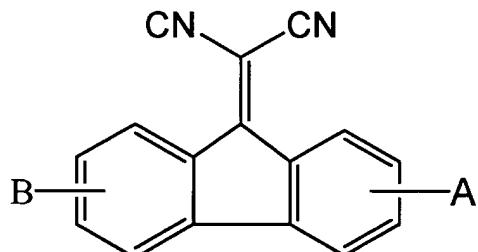
<Formula 2>



wherein R1 through R5 are independently one selected from the group consisting of a hydrogen atom, a C1 ~ C30 substituted or unsubstituted alkyl group, a C6 ~ C30 substituted or unsubstituted aryl group, a C1 ~ C30 substituted or unsubstituted alkoxy group, and a C8 ~ C30 substituted or unsubstituted styrene group, and at least one hydrogen atom in the benzene rings is substitutable by an arbitrary substituent.

20. The electrophotographic cartridge of claim 17, wherein the charge transport material includes an electron transport material represented by Formula 3:

<Formula 3>

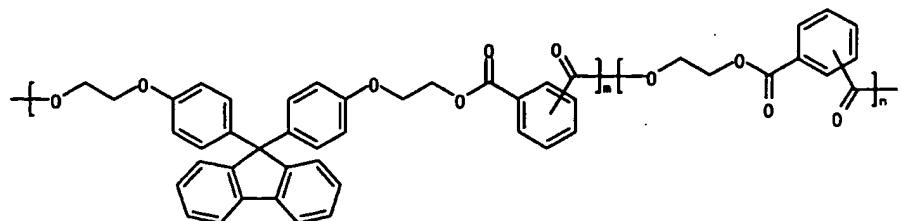


wherein A and B are independently selected from the group consisting of a hydrogen atom, a halogen atom, a C2 ~ C30 substituted or unsubstituted alkoxy carbonyl group and a C2 ~ C30 substituted or unsubstituted alkylaminocarbonyl group, and at least one hydrogen atom in the benzene rings is substitutable by a halogen atom.

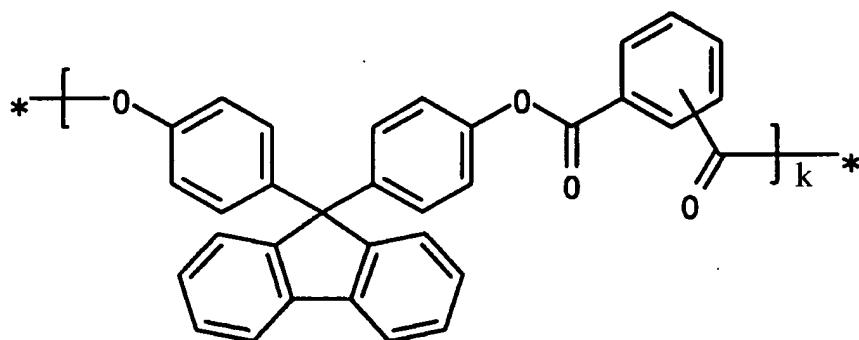
21. The electrophotographic cartridge of claim 17, wherein a proportion of the binder resin in the surface layer is preferably 60 ~ 90% by weight.

22. The electrophotographic cartridge of claim 17 wherein the polymer compound is represented by Formula 4, 5, 6 or 7:

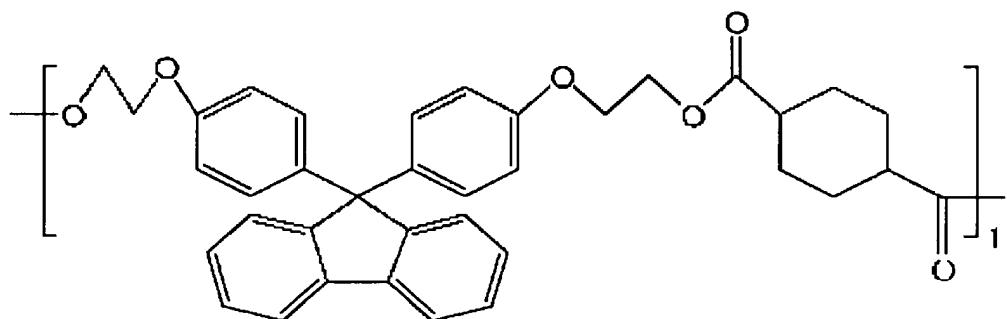
<Formula 4>



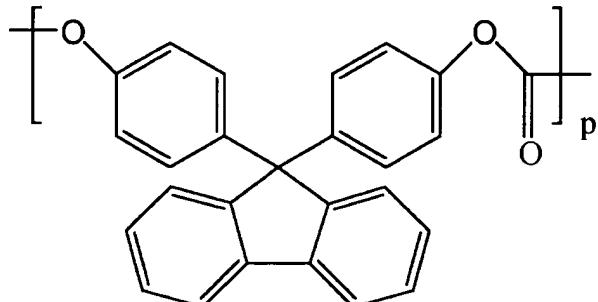
<Formula 5>



<Formula 6>



<Formula 7>



wherein k, l, m, n and p are independently an integer between about 10 and about 1000.

23. The electrophotographic cartridge of claim 17, wherein the electrophotographic photoreceptor further comprises an intermediate layer for enhancing bonding strength of the organic photosensitive layer to the electrically conductive substrate.

24. The electrophotographic cartridge of claim 17, wherein the electrophotographic photoreceptor further comprises an intermediate layer for preventing charge injection from the electrically conductive substrate, between the electrically conductive substrate and the photosensitive layer.